1. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(2 - 6i)(-8 + 10i)$$

A. $a \in [-80, -70]$ and $b \in [25, 31]$

B. $a \in [36, 45]$ and $b \in [-70, -64]$

C. $a \in [36, 45]$ and $b \in [68, 73]$

D. $a \in [-16, -12]$ and $b \in [-65, -58]$

E. $a \in [-80, -70]$ and $b \in [-28, -23]$

---

2. Choose the **smallest** set of Real numbers that the number below belongs to.

$$-\sqrt{\frac{3969}{49}}$$

A. Rational

B. Whole

C. Integer

D. Not a Real number

E. Irrational

---

3. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(-5 + 7i)(6 - 8i)$$

A. $a \in [-91, -85]$ and $b \in [-3, -1]$

B. $a \in [-38, -26]$ and $b \in [-59, -54]$

C. $a \in [26, 29]$ and $b \in [79, 86]$

D. $a \in [-91, -85]$ and $b \in [2, 5]$

E. $a \in [26, 29]$ and $b \in [-89, -79]$

4. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{-27 + 77i}{8 + 5i}$$

A. $a \in [-5, -3]$ and $b \in [15, 16.5]$

B. $a \in [1, 2.5]$ and $b \in [6, 9.5]$

C. $a \in [1, 2.5]$ and $b \in [750.5, 751.5]$

D. $a \in [-7, -6.5]$ and $b \in [4, 6.5]$

E. $a \in [168.5, 170]$ and $b \in [6, 9.5]$

5. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{72 + 55i}{4 + i}$$

A. $a \in [342.5, 344]$ and $b \in [8, 10.5]$

B. $a \in [20, 21.5]$ and $b \in [8, 10.5]$

C. $a \in [20, 21.5]$ and $b \in [147.5, 149]$

D. $a \in [13, 14.5]$ and $b \in [15.5, 18]$

E. $a \in [17, 18.5]$ and $b \in [54.5, 56]$

6. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{81}{0}} + \sqrt{90}i$$

A. Pure Imaginary

B. Nonreal Complex

C. Rational

D. Irrational

E. Not a Complex Number

---

7. Simplify the expression below and choose the interval the simplification is contained within.

$$8 - 10 \div 20 * 13 - (6 * 7)$$

A. $[-31.9, -28.9]$

B. $[47, 50.8]$

C. $[-42.5, -38.3]$

D. $[-38.4, -32.8]$

E. None of the above

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8. Choose the **smallest** set of Real numbers that the number below belongs to.

$$-\sqrt{\frac{78400}{400}}$$

A. Integer

B. Whole

C. Irrational

D. Not a Real number

E. Rational

---

9. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{0}{361}} + \sqrt{5}i$$

A. Rational

B. Nonreal Complex

C. Not a Complex Number

D. Pure Imaginary

E. Irrational

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10. Simplify the expression below and choose the interval the simplification is contained within.

$$4 - 6 \div 1 * 16 - (8 * 11)$$

A. $[-181, -178]$

B. $[-1101, -1097]$

C. $[87.62, 99.62]$

D. $[-86.38, -83.38]$

E. None of the above
